Claims

1. A method for controlling at least one micromechanical element, **characterized** in that

- the micromechanical element is set to an active state with at least a second control signal, and

- the micromechanical element is held on said active state with at least a first control signal.

2. A method according to claim 1, **characterized** in that the active state is a pull-in state.

3. A method according to claim 1, **characterized** in that the second control signal is a short duration voltage pulse.

4. A method according to claim 1, **characterized** in that the second control signal is a short duration sinusoidal signal.

5. A method according to claim 1, **characterized** in that the second control signal is a short duration pulse train.

6. A method according to claim 1, **characterized** in that the second control signal is a frequency swept waveform.

7. A method according to claim 1, **characterized** in that the first control signal is a constant voltage signal.

8. A method according to claim 1, **characterized** in that the micromechanical element is set to the active state with a sum of the first control signal and the second control signal.

9. A method according to claim 8, **characterized** in that the sum consists of signals with different amplitudes.

10. A method according to claim 8, **characterized** in that the sum consists of signals with different frequencies.

11. A method according to claim 8, **characterized** in that the sum consists of signals with different duty cycles.

12. A method according to claim 8, **characterized** in that the sum consists of signals with different pulse densities.

13. A method according to claim 1, **characterized** in that an amplitude of the second control signal is higher than an amplitude of the first control signal.

14. A method according to claim 13, **characterized** in that the amplitude of the second control signal is raised with a resonance circuit.

15. A method according to claim 14, **characterized** in that a frequency of the second control signal is 0 - 6 % lower than an electrical resonance frequency of the resonance circuit.

16. A method according to claim 1, **characterized** in that a harmonic frequency of the second control signal is essentially the same as the mechanical resonance of the micromechanical element.

17. A method according to claim 1, **characterized** in that a harmonic frequency of the second control signal is essentially the same as the electrical resonance of the micromechanical element.

18. An arrangement for controlling at least one micromechanical element (402), **characterized** in that the arrangement contains at least

- means for generating at least a first control signal and a second control signal,

- means for raising a voltage level of at least said second control signal,

- means for feeding said first control signal and said second control signal with raised voltage level to the micromechanical element.

19. An arrangement according to claim 18, **characterized** in that means for generating at least the first control signal and the second control signal contain at least a voltage converter circuit.

20. An arrangement according to claim 19, **characterized** in that the voltage converter circuit contains at least

- an inductor connected to a DC voltage source,

- a micromechanical element with an intrinsic capacitance,

- a diode for preventing discharging of said capacitor of said micromechanical element,

- a first switching element for controlling a voltage between said inductor and said diode,

- a second switching element (803) for resetting said charge of said capacitance (402) of said micromechanical element.

21. An arrangement according to claim 18, **characterized** in that means for raising a voltage level of at least said second control signal contain at least a resonance circuit.

22. An arrangement according to claim 21, **characterized** in that the resonance circuit consists of an inductor and a capacitance of the micromechanical element.

23. An arrangement according to claim 22, **characterized** in that the capacitance is intrinsic to the micromechanical element.

24. An arrangement according to claim 22, **characterized** in that the capacitance is external to the micromechanical element.

25. An arrangement according to claim 22, **characterized** in that the inductor and the micromechanical element are integrated on the same substrate.

26. An arrangement according to claim 25, **characterized** in that the substrate is a silicon wafer.

27. An arrangement according to claim 25, **characterized** in that the substrate is made of borosilicate glass.

28. An arrangement according to claim 25, **characterized** in that the substrate is made of quartz.

29. An arrangement according to claim 25, **characterized** in that the substrate is made of polymer.

30. An arrangement according to claim 22, **characterized** in that the inductor is a three dimensional solenoid.

31. An arrangement according to claim 22, **characterized** in that the inductor is a three dimensional toroid.

32. An arrangement according to claim 22, **characterized** in that the inductor has a high permittivity core.

33. An arrangement according to claim 22, **characterized** in that the inductor is a bulk component external to the micromechanical element.

34. An arrangement according to claim 21, **characterized** in that the resonance circuit contains at least,

- an inductor connected to a DC voltage source,

- an micromechanical element with an intrinsic capacitance,

- a switching element to control for discharging said intrinsic capacitance of said micromechanical element.

35. An arrangement according to claim 21, **characterized** in that the resonance circuit is driven by an amplifier stage.

36. An arrangement according to claim 35, **characterized** in that the amplifier stage is controlled with a feedback signal from the resonance circuit.

37. An arrangement according to claim 18, **characterized** in that means for feeding the first control signal and the second control signal with raised voltage level to the micromechanical element contain a summing element for summing said first control signal and said second control signal.

38. An arrangement according to claim 18, **characterized** in that means for feeding the first control signal and the second control signal to the micromechanical element contain at least one control electrode.

39. An arrangement according to claim 18, **characterized** in that means for feeding the first control signal and the second control signal to the micromechanical element contain at least two separate control electrodes for said first and said second control signals.

40. An arrangement according to claim 38 or 39, **characterized** in that the control electrodes are at least partly covered by a dielectric layer to prevent a galvanic contact between said control electrodes and the micromechanical element.